

IN THE CLAIMS:

1. (Currently Amended) ~~Door~~ A door state changing apparatus for assisting a user to move a door between a closed state where the door is positioned adjacent a door frame and an open state comprising:

permanent magnet means on or attached to said door to provide a permanent magnetic field,

electromagnet means on or attached to said door frame adjacent said permanent magnet means when said door is in said closed state, which electromagnet means is energisable to provide a magnetic field in a first direction to reinforce said permanent magnetic field and energisable to provide a magnetic field in a second direction to oppose said permanent magnetic field

door position detection means to detect the state of said door,

user interface means to detect the presence of a user attempting to alter the state of said door, and

control means which receives input from said door position detection means and said user interface means and provides a control signal to energise said electromagnet means to provide a magnetic field in said first direction if said user interface means indicates a user is attempting to alter the state of said door and said door position detection means indicates that said door is in said open state and provides a control signal to energise said electromagnet means to provide a magnetic field in said second direction if said user interface means indicates a user is attempting to alter the state of said and said door position detection means indicates that said door is in said closed state.

2. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in claim 1 wherein said electromagnet means is de-energised when said door position detection means indicates that said door is in said closed position.

3. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in ~~either claim 1 or claim 2~~ wherein said control means includes delay means which provide a time delay between said door position detection means detecting said closed state and de-energising said electromagnet means.

4. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in ~~any one of claims claim 1 to 3~~ wherein said user interface means include sensing means which cover a region of the surface of said door.

Claims 5-7 (Canceled)

8. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in ~~any one of claims claim 1 to 7~~ wherein said door position detection means comprise proximity detection means provided on or attached to said door frame which detects the proximity of said permanent magnet means.

9. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in claim 8 wherein said proximity detection means comprise means to sense the inductance of said electromagnet means.

10. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in ~~any one of claims claim 1 to 9~~ wherein said permanent magnet means is formed in a substantially “U” shape with the ends of the legs of said “U” directed towards said electromagnet means and with opposing magnetic poles at the end of each leg.

11. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in ~~any one of claims claim 1 to 10~~ wherein said electromagnet means comprise a substantially “U” shaped core of magnetically permeable material and an energisable winding around said core, the ends of the legs of said “U” shape being directed towards the legs of said permanent magnet means.

12. (Currently Amended) ~~Door~~ A door state changing apparatus as claimed in ~~any one of claims claim 1 to 11~~ wherein said permanent magnet means is positioned on or near the centre line of said door.

13. (Currently Amended) A home appliance including a cabinet and a door hingeably connected to said cabinet and closeable against a door frame said appliance including a door state changing apparatus for assisting a user to move said door between a closed state and an open state where said door is positioned adjacent said door frame and an open state, said door state changing apparatus comprising:

permanent magnet means on or attached to said door to provide a permanent magnetic field,

electromagnet means on or attached to said door frame adjacent said permanent magnet means when said door is in said closed state, which electromagnet means is

energisable to provide a magnetic field in a first direction to reinforce said permanent magnetic field and energisable to provide a magnetic field in a second direction to oppose said permanent magnetic ~~field~~ field.

door position detection means are also provided to detect the state of said door,

user interface means to detect the presence of a user attempting to alter the state of said door, and

control means which receives input from said door position detection means and said user interface means and provides a control signal to energise said electromagnet means to provide a magnetic field in said first direction if said user interface means indicates a user is attempting to alter the state of said door and said door position detection means indicates that said door is in said open state and provides a control signal to energise said electromagnet means to provide a magnetic field in said second direction if said user interface means indicates a user is attempting to alter the state of said and said door position detection means indicates that said door is in said closed state.

14. (Currently Amended) A refrigerator including a door state changing apparatus as claimed in any one of claims 1 to 12.

15. (Canceled)

16. (New) A door state changing apparatus as claimed in claim 3 wherein said user interface means include sensing means which cover a region of the surface of said door.

17. (New) A door state changing apparatus as claimed in claim 3 wherein said door position detection means comprise proximity detection means provided on or attached to said door frame which detects the proximity of said permanent magnet means.

18. (New) A door state changing apparatus as claimed in claim 17 wherein said proximity detection means comprise means to sense the inductance of said electromagnet means.

19. (New) A door state changing apparatus as claimed in claim 4 wherein said door position detection means comprise proximity detection means provided on or attached to said door frame which detects the proximity of said permanent magnet means.

20. (New) A door state changing apparatus as claimed in claim 19 wherein said proximity detection means comprise means to sense the inductance of said electromagnet means.

21. (New) A door state changing apparatus as claimed in claim 10 wherein said door position detection means comprise proximity detection means provided on or attached to said door frame which detects the proximity of said permanent magnet means.

22. (New) A door state changing apparatus as claimed in claim 21 wherein said proximity detection means comprise means to sense the inductance of said electromagnet means.

23. (New) A door state changing apparatus as claimed in claim 12 wherein said door position detection means comprise proximity detection means provided on or attached to said door frame which detects the proximity of said permanent magnet means.

24. (New) A door state changing apparatus as claimed in claim 23 wherein said proximity detection means comprise means to sense the inductance of said electromagnet means.